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TITLE: Synthesis and ir spectra of some oxygen-containing organotin and organosilicotin compounds

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 12, 1962, 4007-4012

TEXT: The synthesis and properties of the following are described: $(\text{CH}_3)(\text{iso-C}_4\text{H}_9)(\text{C}_6\text{H}_5)\text{SiOSn}(\text{iso-C}_4\text{H}_9)_3$, $[(\text{iso-C}_4\text{H}_9)_3\text{SnO}]_2\text{Si}(\text{C}_2\text{H}_5)_2$, $[(\text{CH}_3)(\text{iso-C}_4\text{H}_9)(\text{C}_6\text{H}_5)\text{SiO}]_2\text{Sn}(\text{n-C}_4\text{H}_9)_2$. The ir spectra of these compounds and of the hexaalkylstannoxides $\text{R}_3\text{SnOSnR}_3$ where $\text{R} = \text{iso-C}_4\text{H}_9$, $\text{n-C}_7\text{H}_{15}$ and the dialkylstannones R_2SnO where $\text{R} = \text{C}_2\text{H}_5$, $\text{n-C}_3\text{H}_7$, $\text{iso-C}_5\text{H}_{11}$, $\text{n-C}_7\text{H}_{15}$ are given in order to study the spectroscopic characteristics of the $\rightarrow \text{SnO}$, $\rightarrow \text{SiO}$ -, and $\rightarrow \text{SnOSi} \leftarrow$ bonds. The organosilicotin compounds were synthesized, respectively, by the reaction of the appropriate hexaalkylstannoxide

Card 1/2

Synthesis and ir spectra ...

S/079/62/032/012/007/008
D424/D307

with the appropriate silanol and silanediol and of the appropriate dialkylstannone with the appropriate silanol. By comparing the ir spectra of all these compounds and those of stannic oxide and tetra-iso-butylstannane, assignments of the main bands are made. The absorption frequency of the $\text{Sn}-\text{O}$ bond in the $\text{Sn}-\text{O}-\text{Sn}$ group is about 780 cm^{-1} . In the $\text{Si}-\text{O}-\text{Sn}$ group, the $\text{Sn}-\text{O}$ frequency is lowered to 720 cm^{-1} and that of $\text{Si}-\text{O}$ to 980 cm^{-1} . In the case of the dialkylstannones, strong bands at 570 ± 5 and $415 \pm 10 \text{ cm}^{-1}$ are assigned to the $\text{Sn}-\text{O}-\text{Sn}$ group, confirming their polymeric nature, $[\text{R}_2\text{SnO}]_x$. There are 3 figures and 1 table.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut (All-Union Scientific Research Vitamin Institute)

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Card 2/2